Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554–0005

In the Matter of	)	
	)	
Digital Audio Broadcasting Systems	)	
And Their Impact on the Terrestrial	)	MM Docket No. 99–325
Radio Broadcast Service	)	

To: The Commission

PETITION FOR RECONSIDERATION

OF

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SUMMARY

I petition for reconsideration of the Commission's decision to permanently authorize IBOC radio broadcasting. The petition has three grounds. First, contravening the Commission's rules, a final rulemaking decision was reached before considering all relevant comments and material of record. There was wholesale exclusion of a body of duly solicited comment. This arbitrary and capricious process is sufficient on its own to require reconsideration. In addition, and as a consequence, the final rule was reached with the Commission not mindful of critical facts and issues put on record. The wrongly executed attempt to defer "standards" issues until later was prejudicial both to the decisions already reached and to the decisions deferred.

Second, the decision contained substantive error because, *inter alia*, the Commission failed to recognize that iBiquity evaded their commitment to provide public documentation of essential aspects of their system. For several reasons, the Commission cannot and should not authorize (choose) a digital radio broadcasting system that requires secret, non-public knowledge to implement. Such action would amount to a granting a perpetual patent to those privileged to know the secrets. A contributing factor to this error was iBiquity's lack of candor and their quiet bait-and-switch, promising the Commission an open standard then, off-record, acting otherwise.

Third, the net result was the adoption of a final rule that, by its plain meaning, renders the installed base of IBOC equipment as unauthorized. This was not the Commission's apparent intent.

It is clear that further consideration is due before permanent IBOC authorization can be justified. Indeed, the issue of secret specifications (essential trade secrets) is such a "show stopper" that continued interim authorization is not justified either. Accordingly, I petition to suspend the rollout of digital radio broadcasting until a plan is adopted to resolve the problem.

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I. INTRODUCTION AND COMPLAINT

1. My name is Jonathan E. Hardis, and I represent myself before the Commission to petition for reconsideration of the *Second Report and Order* ("*SR&O*") and its adopted rules in the above captioned proceeding.[1]

2. The *SR&O* amends the Commission's rules for IBOC digital broadcasting. As explained *infra*, the key provision, designated § 73.404(a) ("permanent authorization"), was ill considered and is, at best, not yet ripe. During the course of this proceeding, iBiquity changed their IBOC system and reneged on a vital commitment made in their original Petition for Rulemaking, to provide a complete technical specification for various reasons in the public interest as spelled out in the Petition. The Commission has not yet considered this situation, the well-documented public benefits that will consequently not occur, and the ensuing harm that does. One would conclude that the current incarnation of the "iBiquity system" is not suitable as the U.S. radio-broadcasting standard. Therefore, permanent authorization, or even temporary

[1] FCC 07–33, Adopted March 22, 2007, Released May 31, 2007. As of the date of this Petition, notice has yet to be published in the Federal Register.

authorization, is not appropriate. I hereby petition to have this rule set aside and the order vacated until such time, if ever, that the issues explained herein are resolved.

3. Reconsideration is clearly and unequivocally justified on three independent grounds. First, the Commission did not follow its own rules in the process leading to the *Second Report and Order*. The deficiencies are major and substantially prejudiced both the outcome of the *SR&O* and the deferred subject of "standards." Second, the decision of permanent authorization was arbitrary and capricious because the Commission failed to consider important aspects of the problem. Full consideration of these relevant aspects is necessary to avoid major error in both fact and law. And finally, the plain language of § 73.404(a) does not effectuate the Commission's apparent intent. This is a strong indication that the rule was based on confusion and misinformation rather than full and complete understanding.

4. This petition seeks to establish a basic premise: the Commission cannot hand out patents that provide better deals than the ones earned at the Patent Office. While adoption of technical specifications is integral to the Commission's business, such specifications must be in such full, clear, concise, and exact terms as to enable any persons skilled in the art to which they pertain to make fully functional apparatus. Technical specifications that either explicitly or implicitly rely on essential details that are well-guarded trade secrets amount to perpetual Government patents to those privileged to know the secrets. They stifle competition and innovation. I brought this serious issue to the Commission's attention in public comment almost two years ago,[2–3] and I reiterate it herein. Prompt resolution is required.

5. The history of this proceeding is tarnished by deceit. iBiquity petitioned the Commission to select a single system for digital audio broadcasting ("DAB") that would be

[2] Comments of Jonathan E. Hardis, July 14, 2005.
[3] Reply Comments of Jonathan E. Hardis, August 17, 2005.

openly and completely documented, opening the door to healthy competition subject to the usual obligation of patent licensing. Since then, their deeds have not matched their words. They have manipulated the Commission to obtain a monopoly franchise that is impenetrable owning to its armor of trade secrets. For reasons discussed in comments, and for reasons reiterated *infra*, this situation is untenable. It is the proper function of the FCC to protect the public from such bait-and-switch schemes, not to turn a blind eye towards them.

6. There are two paths towards resolution—the easy way and the hard way. The easy way would be for iBiquity to come to a prompt decision to honor their commitments. The hard way would be for the Commission to demand a "conforming" system (a term used in Sec. III, *infra*), and the updating (replacement) of the software in the IBOC radios now in the hands of consumers. As time goes on, the latter becomes more and more difficult and expensive to do, and more and more disruptive of the Commission's goals of a smooth, rapid, and successful transition to DAB. Some commenters and press reports[4] have suggested that the easy route is blocked and is not an option. I disagree, but in the presence of doubt time is of the essence. It is not in the public interest to delay resolution any longer and to further compound the burden on the public and the industry if the hard path must be taken. Avoiding resolution is not a valid option, and the magnitude of the problem gets worse by the day. Since the argument will inevitably be made that iBiquity's duplicity is *fait accompli*, to stop the digging of a yet deeper hole I further petition to suspend the rollout of DAB (interim authorization) until a plan of resolution is adopted.

[4] *See*, e.g., Hardis reply comments, *Id.*, at VII (p. 17) (Reference 61).

II. PERMANENT AUTHORIZATION MUST BE RECONSIDERED BECAUSE IT WAS ADOPTED IN CONTRAVENTION TO THE COMMISSION'S RULES AND PROCEDURES

A. The rules require consideration of the complete record

7. § 1.425 of the Commission's rules provides, *inter alia*, that "the Commission will consider all relevant comments and material of record before taking final action in a rulemaking proceeding." § 1.425 creates a procedural requirement that is an extension of those required by the Administrative Procedure Act ("APA") (5 U.S.C. Subchapter II).[5]

B. A record was built using standard notice and comment

8. The *Further Notice of Proposed Rule Making* ("*FNPRM*"), the antecedent of the *SR&O*, included discussion of "standards."[6] The Commission had determined that adoption of a documentary standard would facilitate the rollout of digital audio broadcasting. The Commission supported a "standard-setting" process in order to provide "regulatory clarity" and to "compress the timeframe for finalizing the rules." The Commission noted that the NRSC was working on such standards, and gave official notice that, "we encourage this group to provide us with significant input at this stage of the proceeding and seek comment from other parties on any such submissions."

9. On June 16, 2005, the Commission gave public notice that an NRSC standard ("NRSC-5") was available for the comment, as contemplated in the *FNPRM*. "The Commission

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[5] Once an agency adopts a procedure by rule, compliance is required even if it exceeds statutory mandates. *See*, e.g., *Vitarelli v. Seaton*, 359 U.S. 535 (1959), *Service v. Dulles*, 354 U.S. 363 (1957), and *United States ex rel. Accardi v. Shaughnessy*, 347 U.S. 260 (1954).

[6] *Digital Audio Broadcasting Systems And Their Impact On The Terrestrial Radio Broadcast Service*, Further Notice of Proposed Rulemaking and Notice of Inquiry, 19 FCC Rcd 7505 (2004) ("*FNPRM*"), at 56.

seeks comments on the NRSC-5 standard and the DAB issues relating to its adoption."[7] A comment window was opened in order to build a further record for this rulemaking proceeding.[8]

10. A large number of comments were properly and timely filed within this comment window—among them, mine. These comments expanded the record on important DAB regulatory issues that came to light only through the work of the NRSC—that is, not only on the NRSC-5 document itself, but also on issues integral to the substance of the *SR&O*.

C. There was wholesale exclusion of a body of comment

11. In a manner well described as arbitrary and capricious, in adopting the *SR&O* the Commission excluded from consideration the relevant comments and material of record it had received in response to Public Notice DA 05-1661. This is evidenced by the substance of the *SR&O* and by the omission of the DA 05-1661 comments from the *SR&O* at Appendix A. More precisely, the Commission excluded *almost* all such comments. The *SR&O* made selective and capricious use of these comments in References 17 and 76, using the notation "NRSC-5 proceeding." This notation is erroneous—there is no disjoint "NRSC-5 proceeding." Those comments were properly filed in *this* rulemaking proceeding. Furthermore, Footnote 23 of the *SR&O* makes a most curious statement, "Following the close of the comment cycle in August 2005, we will review the filings and then take further action." It is July 2007, and the comment cycle closed almost two years ago. Surely the Commission and its staff have had adequate time to review the filings. It is a fundamental purpose of the APA to "assure fairness and mature consideration of rules of general application." (*NLRB v. Wyman-Gordon Co.*, 394 U.S. 759, 764 (1969).)

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[7] Comment Sought on National Radio Systems Committee's "In-Band/On-Channel Digital Radio Broadcasting Standard NRSC-5," Public Notice DA 05-1661, June 16, 2005.

[8] Congress prescribed APA procedures "to ensure that the broadest base of information would be provided to the agency by those most interested and perhaps best informed on the subject of the rulemaking at hand." (*Brown Express, Inc. v. United States*, 607 F.2d 695, 701 (5th Cir. 1979).)

12. The Commission explains its actions by saying, "While our consideration of the NRSC-5 IBOC standards is continuing, we find that it is in the public interest to adopt certain policies, rules, and requirements for digital radio before we have completed our evaluation of the standards." (*SR&O* at 12.) I have no problem with the Commission deferring consideration of the NRSC-5 document.[9] However, as more fully explored *infra*, the body of comment that was arbitrarily excluded contained much important information that is germane to the rules being finalized now. For example, it brought to light the critical threshold issue of the existence of essential trade secrets in iBiquity's system.

D. The Commission must set aside permanent authorization until the whole record is properly considered

13. The facts clearly show that by regulation the Commission had obligated itself to consider all relevant comments and material of record before taking final action in a rulemaking proceeding, but failed to do so in this case. There was wholesale exclusion of a body of solicited comment, a textbook example of arbitrary and capricious process. As a matter of law, these facts alone are sufficient to set aside the *SR&O*, and to require reconsideration of permanent authorization using the weight of the full record. The *Accardi* Doctrine requires Federal agencies to follow their own rules. (*Accardi v. Shaughnessy*, 347 U.S. 260 (1954).) Further, "[i]t is a well-settled rule that an agency's failure to follow its own regulations is fatal to the deviant action." (*Florida Inst. of Technology v. FCC*, 952 F.2d 549, at 553 (D.C. Cir. 1992).)

14. The *Accardi* Doctrine may be mooted if no party was prejudiced in any way by the failure of an agency to follow their own rules and regulations. However, that is not the case here. The ostensible reason for ignoring certain comments was that "standards" would be addressed later. "Standards" in this proceeding has had ambiguous meaning, either a decision

[9] NRSC-5 is useless for its intended purposes in its present form. Hardis reply comments, *Id*., at 11.

(as in "standard-setting") or technical documentation.[10] There is little prejudice in putting off the writing of a technical document, but as for standard-setting, the prejudice arises in the tactic of making discreet decisions today (or acquiescing to discreet decisions made by others) and then announcing tomorrow, "it's too late to change." Deferring open consideration of available choices prejudices the eventual outcome. Here, the intellectual property issues (concerning different patent and trade secret exposure in different choices of technology) affect the balance of my rights as a consumer and as a public owner of the airwaves. These rights were prejudiced by the Commission's faulty process. Of more immediate concern to the rulemaking completed, it is the epitome of prejudice to rush to judgment before considering all the salient facts and issues.

III. § 73.404 MUST BE RECONSIDERED BECAUSE ITS PLAIN MEANING IS INCONSISTENT WITH THE COMMISSION'S APPARENT INTENT

15. Notwithstanding my objection to the *SR&O* on procedural grounds, permanent authorization is not justified even if proper procedure had been used. However, argument on this point is made difficult by the discrepancy between § 73.404(a) and the Commission's apparent intent. If properly interpreted by its plain meaning, the rule is actually a good one.

A. The rule defines "conforming" digital facilities

16. § 73.404(a), reads, "The licensee of an AM or FM station, or the permittee of a new AM or FM station which has commenced program test operation pursuant to § 73.1620, may commence interim hybrid IBOC DAB operation with digital facilities **which conform to the technical specifications specified for hybrid DAB operation in the *First Report and Order* in MM Docket No. 99-325**. …" (emphasis added).

[10] In my comments, I have argued to have the word "standard" mean documentation, rather than a decision. In the United States, so-called "documentary" standards are typically adopted by private, non-regulatory bodies, and their use is entirely voluntary. The word "standard" is also used synonymously with "requirement" or "regulation" if the standard is adopted by the Commission.

17. This rule lacks regulatory clarity because no such specifications exist in a form fully useful to an impartial and independent certification authority or adjudicator. For regulatory purposes it would be untenable to maintain that the "iBiquity system" is whatever iBiquity might say it is, and this is an important issue that a documentary standard is ultimately meant to address. Absent such a standard, the *SR&O* takes an empirical approach. It defines the prototype IBOC system tested by the NRSC in 2001–2002 as the "*de facto* standard."[11] (*SR&O* at 7.) Radio stations were permitted to implement IBOC operations without prior authority, provided that the IBOC configurations were substantially the same as those tested by the NRSC. (*SR&O* at 99.) Substantive changes to this standard were adopted through notice and comment—dual antennas (*SR&O* at 91) and multicasting (*SR&O* at 34–37). Moving forward, the Commission anticipates further development of the technology, and delegates to the Media Bureau the authority to permit additional configurations "after appropriate notice and comment." (*SR&O* at 99.) Presumably any such configuration would also be deemed as conforming under the rule.

B. "HD Radio" is nonconforming

18. The technical specifications for the system described in the *First Report and Order* included use of a codec known as AAC.[12–13] A second codec known as PAC was separately tested and authorized (*R&O* at 18), but it ultimately proved to be inferior for the purpose and was never used in commercial IBOC configurations.

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[11] In addition to the empirical reference to the prototype, the *R&O* also includes two Appendices, B and C, that purport to describe the system. However, these Appendices are vague and out of date, differing from the "iBiquity system" today in some respects. The NRSC-5 standard is a closer approximation, requiring several times the length of the Appendices for specificity. But even it contains outdated and erroneous information, which is in the process of being corrected.

[12] *Digital Audio Broadcasting Systems And Their Impact On The Terrestrial Radio Service*, First Report and Order, 17 FCC Rcd 19990 (2002) ("*R&O*"), at 18. Although not directly stated in the *R&O*, both the AM and FM systems as tested by the NRSC used AAC.

[13] *See* Hardis comments, *Id.*, at I.G (pp. 15–16) for background on codecs.

19. Commercial IBOC products sold under the trademark "HD Radio" use a codec known as HDC (a.k.a. "HD codec") and are thus nonconforming under the rule. HDC was developed *ab initio* after the *R&O* was released, and it was not adopted by iBiquity until August 2003.[14] No petition has ever been made to the Commission to permit the use of HDC. No notice has ever been issued soliciting comment on the substitution of HDC for AAC. And no specific authorization has ever been made by the Commission to allow the use of HDC. This is not mere administrative oversight. The substitution of HDC for AAC is decidedly *not* in the public interest. Comments on the record, including my own, attest to this—but unfortunately they are among the comments that were excluded from consideration. Should Media Bureau decide to issue notice and solicit additional comments to build a fuller record they would find the proposition highly controversial. And would the proposition be decided on its public-interest and legal merits, it would undoubtedly fail. (*See* Sec. IV.B, *infra*.)

20. It is well established that an agency may not adopt an interpretation of its own rule that contradicts its plain meaning.[15] No IBOC configuration, not even HDC, is allowed under the rule until after appropriate notice and comment—and for this I applaud you. Nevertheless, a full reading of the *SR&O* leads one to believe that it was not the Commission's

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[14] Hardis comments, *Id*., at I.G (p. 16) and III.E (pp. 30–34).

[15] Quoting *National Whistleblower Center v. Nuclear Regulatory Commission and United States of America*, United States Court of Appeals for the District of Columbia Circuit, No. 99-1002, Argued October 6, 1999, Decided November 12, 1999, archived at http://www.ll.georgetown.edu/federal/judicial/dc/opinions/99opinions/99-1002a.html:
[A] well-established administrative law principle provides that an agency may not adopt an interpretation of its own regulation which … contradicts the plain meaning of the regulation, *see Ohio Power Co. v. FERC*, 954 F.2d 779, 783 (D.C. Cir. 1992) ("[N]o deference is owed an interpretation at odds with the plain meaning of the text."); *Guard v. NRC*, 753 F.2d 1144, 1148–49 (D.C. Cir. 1985) (noting that "high regard" of deference to NRC interpretation of its own regulation "is appropriate only so long as the agency's interpretation does no violence to the plain meaning of the provision at issue"); *Union of Concerned Scientists v. NRC*, 711 F.2d 370, 381 (D.C. Cir. 1983) ("[W]hen an agency's interpretation of its own rules flies in the face of the language of the rules themselves, it is owed no deference.")

intent to make currently deployed HD Radio hardware (more precisely, the software within it) nonconforming. Therefore, in the next section I will argue for reconsideration of the rule on the speculation that the Commission might attempt to interpret the rule as permitting use of HDC, or, in the alternative, to embark on a process to change the rule as to allow it.

21. I should note that the plain meaning of the rule, making HD Radio nonconforming and unauthorized, would have heavy consequences in the marketplace today. While the consequences would be fair and just, few commenters asked for anything so severe. The plain meaning of the rule provides a basis to suspend the rollout of that DAB which uses HDC, as I petition herein. However, I share the Commission's desire for an orderly introduction of DAB and would be sympathetic to establishing temporary authority for HDC once a plan of resolution is adopted.

IV. PERMANENT AUTHORIZATION MUST BE RECINDED BECAUSE THE COMMISSION DID NOT CONSIDER CRUCIAL FACTORS THAT CONTRAVENE SUCH A DECISION

22. Under a plain-meaning interpretation of § 73.404(a), much of this section would be moot. However, on the speculation that the Commission intends to interpret, modify, or supplement the rule as to permit the use of HDC or other trade secrets, I argue that such action cannot be taken because crucial factors have not been considered.

A. The Commission has not adequately considered the issue of patents

23. A pivotal finding in the *SR&O* concerned patents. The Commission recognized that the iBiquity IBOC system uses patented technologies. (*SR&O* at 101.) "In the DAB FNPRM, we sought further comment on iBiquity's conduct regarding licensing agreements in the interim DAB operating period." (*Id*.) Such comment was received. On the basis of the record the Commission thus concluded, "We find that iBiquity has abided by the Commission's patent policy up to this point in the DAB conversion process." (*Id*.)

1. The Commission has failed to follow its own patent policy

24. This finding is simply wrong—not only wrong, impossible. The Commission's patent policy, as cited,[16] contains no requirements for patent holders, such as iBiquity. The Commission's patent policy only establishes duties for the Commission itself. And here again, as in Sec. II, *supra*, the Commission has failed to follow its own rules. This adds further weight to the necessity of setting aside the *SR&O* until such time as all proper procedures have been followed.[17]

25. The Commission's patent policy, at its core, is a requirement of due diligence. Essentially the policy requires Commission staff to keep abreast of the broad patent landscape in order to understand their choices and to make informed decisions.[18] When rulemaking begins, "The Commission's patent policy for a number of years has been to obtain patent information whenever it becomes relevant to a particular proceeding." "Copies of relevant patents as issued will be secured. The Commission's staff will ascertain the assignment or licensing arrangements for significant patents either by examination of the Patent Office records or by direct inquiry to the patentee, licensees, or assignees." And, "[w]henever it appears that the patent structure is or may be such as to indicate obstruction of the service to be provided under the technical standards

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[16] *Revised Patent Procedures of the Federal Communications Commission*, 3 FCC 2d 26–27 (1966), committing to record a Public Notice adopted December 1961, and as further explained at 3 FCC 2d 25 (1966).

[17] It makes no difference that the patent policy was adopted by public notice rather than by (in)formal rulemaking. An agency is bound by its own internal "order." (*Vitarelli v. Seaton*, 359 U.S. 535 (1959)). The Court has previously held the Commission bound by its "rule" that, while not formally promulgated, had been established as "usual practice." (*Sangamon Valley Television Corp. v. United States*, 269 F. 2d 221 (D.C. Cir. 1959)) The binding effect of nonlegislative pronouncements is determined by analysis of whether the agency "intends" to be bound. (*Thorpe v. Housing Authority of Durham*, 393 U.S. 268 (1969); *New England Tank Industries of New Hampshire, Inc. v. United States*, 861 F.2d 685 (Fed. Cir. 1988); *Fairington Apartments of Lafayette v. United States*, 7 Cl. Ct. 647 (1985)). As patent policy is cited in the *R&O* and the *SR&O* as a governing document, the intent here is obvious.

[18] The policy provides for having staff, "keep currently abreast of all patents issued and technical developments in the communications field which may have an impact on technical standards approved by the Commission in the various services." (Patent policy, *Id*.)

promulgated by the Commission, this fact will be brought to the Commission's attention for early consideration and appropriate action." (Patent policy, *Id.*)

26. In the instant proceeding, the patent policy has not been followed. There is little relevant information on the record, being mostly iBiquity's patent disclosure to the NRSC in April 2005,[19] well after the *R&O*. However, these patents were only the ones purported to bear upon the NRSC-5 standard, which had limited scope. Conspicuous by their absence were the patents covering the HD codec (HDC). This information had high probative value because, "it would reveal which, if any, well-known codec technologies HDC might use."[20] More specifically, it might reveal the truth of the matter as to whether or not HDC is little more than HE-AAC in a camouflage suit. Perhaps such a list of patents would need to be interpreted. Thus, the patent policy would require the Commission to use its investigative authority to contact Via Licensing Corp.[21] to ascertain the patents in the HE-AAC patent pool, and what licensing arrangements they might have in place for IBOC radio (perhaps through Coding Technologies). The purpose of these inquires would be to, "prevent public benefits of [systems specified by the Commission] from being derogated by unreasonable exercise of patent rights" (3 FCC 2nd 25) and to determine, "the availability of equipment [software in this case—not an issue in 1961] that will meet the [Commission's] specified performance standards." (Patent policy, *Id.*)

27. It is plain that there is no record before the Commission on the patent landscape of codecs useful for IBOC radio. To the extent that § 73.404(a) might be interpreted as allowing HDC as a necessary IBOC configuration, it must be set aside until after such a record is developed and properly analyzed.

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[19] Hardis comments, *Id.*, at III.E (p. 32).
[20] Hardis comments, *Id.*
[21] Hardis comments, *Id.*, at I.G (p. 17).

2. The Commission has not adequately considered the issue of "reasonable and non-discriminatory" patent licensing

28. The Commission reports that, "we [have monitored] the behavior of the patent holders to determine if the required licensing agreements are reasonable and non-discriminatory." (*SR&O* at 101.) "In the *DAB FNPRM*, we sought further comment on iBiquity's conduct regarding licensing agreements in the interim DAB Period." (*Id*.) Perhaps this was a basis of the finding that iBiquity was "abiding" by policy. "If we receive information that suggests we need to explore this issue further … we will take appropriate action at that time." (*Id*.)

29. The Commission has had substantial information in hand for nearly two years that some of iBiquity's licensing arrangements are inherently unreasonable and discriminatory.[22] As a policy matter, these licensing arrangements stifle innovation and competition. This information is found within the comments that were arbitrarily and capriciously excluded from consideration.

30. Rather than repeating my comments here, I will summarize the major points. The problem arises in large part by the bundled licensing of patents and trade secrets. The HD codec is the principal example. Maintaining that the technology contains trade secrets, iBiquity achieves perpetual licensing, thus nullifying the Constitutional provision that patents must only last for limited times. Second, U.S. patent policy recognizes that each new invention builds upon the art of previous ones. Thus derives a *quid pro quo* where, in return for patent rights, inventors must teach their new art to others. Maintaining that the technology contains trade secrets, iBiquity does not do so, and thus does not cede the means of independent (and competitive) product innovation. Third, while iBiquity agrees to "reasonable and non-discriminatory" licensing to the extent that they must in order to meet Commission or NRSC requirements, they so narrowly construe the offer as to exclude others from ancillary markets and future IBOC

[22] Hardis comments, *Id*., at III.F (pp. 35–38).

capabilities. For example, they extended the offer to license the HD codec for radio transmission equipment (the subject of NRSC-5), since that is what the Commission regulates (47 U.S.C. 303(e)). Consumer receiving equipment is another matter, particularly equipment that does anything more than play audio in real time. Similarly, in the broadcast studio, there is no commitment to the industry that stores, edits, processes, and transports digital data before it reaches the transmitter. This is because these markets do not deal with "NRSC-5 compliant" equipment—that is, they are outside the scope of NRSC-5.

B. The Commission has not at all considered the issue of trade secrets

31. Trade secrets are a form of intellectual property entirely separate from patents. They allow a company to capture the exclusive benefit of their know-how forever, provided that the secret is kept. In comments thus far excluded from consideration, I go into great detail about how iBiquity's post-*R&O* claim to trade secrets have skewed this proceeding, and the perverse outcomes thus caused. It is most surprising that Commission reached finality in rulemaking before at least considering these issues.

1. It is unconstitutional for Government to imbue owners of trade-secret technology with exclusive rights thereto under law

32. "[The Congress shall have Power…] To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." (U.S. Constitution, Article I, Section 8; the "Patent Clause.") Technologies held as trade secrets are, by their very nature, not eligible for any such consideration. Under well-established law and precedent, full disclosure of the technology is required in advance of receiving an exclusive right, which is the antithesis of the nature of a trade secret. Two considerations govern. First, trade secrets may be held in perpetuity, while the mar-

ket-distorting effects of Government-sanctioned monopolies must only last for limited times.[23] Full disclosure in advance is required to ensure the public benefit. Second, trade secrets require secrecy, while this provision requires openness. The phrase, "to promote the progress of science and useful arts," means not only immediate improvement of contemporary technology (e.g., broadcast radio) but also the enabling of future innovation that would necessarily build upon the invention of today.[24] Full disclosure in advance is required so that others might learn from it.

2. Notwithstanding its unconstitutionality, adoption of trade secrets in this proceeding is *ultra vires* and contrary to the Communications Act

33. The Communications Act was adopted for the purpose, *inter alia*, of establishing an efficient nationwide radio communication service (47 U.S.C. 151). To further this goal, the Commission adopts technical standards to ensure the uniformity of broadcasting apparatus. Sometimes these standards set minimum performance requirements, e.g., with respect to "purity and sharpness" (47 U.S.C. 303(e)). At other times it becomes necessary to set more prescriptive standards in order to ensure that all transmissions are alike. This is increasingly the case in the digital age owing to the greater degree of technical detail needed to distinguish transmissions of similar character.

34. Notwithstanding the Commission's need to set standards and requirements, nothing in the Communications Act empowers the Commission to alter the carefully crafted

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[23] "The monopoly privileges that Congress may authorize are neither unlimited nor primarily designed to provide a special private benefit. Rather, the limited grant is a means by which an important public purpose may be achieved. It is intended to motivate the creative activity of authors and inventors by the provision of a special reward, and to allow the public access to the products of their genius after the limited period of exclusive control has expired." (*Sony Corp. of America v. Universal City Studios, Inc.* 464 U.S. 417 (1984).)

[24] "It is axiomatic that the *quid pro quo* for granting to an inventor a 17-year [now 20-year] right to exclude others from the use of his invention is the disclosure of such invention in such full and clear terms that others skilled in the art may learn from the patent how to practice the invention after expiration of the patent and perhaps to build upon this technological foundation to create improvements which further advance the state of the art." (*Foster Wheeler Corp. v. Babcock & Wilcox Co.*, 512 F. Supp. 792, 798; 210 U.S.P.Q. 232 (S.D.N.Y. 1981).)

scheme that the Congress has established in exercise of its power under the Patent Clause. Nothing allows the Commission to establish new intellectual property rights, or new schemes of asserting them. The Commission must tread carefully to neither abridge nor enhance such rights, as would be the case if Commission action effectively extends the term of a patent, or expands the scope of a patent to unpatented technology elements. As explained in comment (Hardis comment, *Id*., at III) and elsewhere in this Petition, such would be the outcomes if the Commission grants licensing exclusivity to trade secret, rather than to patented technology.

35. To the extent that the Communications Act imparts a duty of care upon the Commission to act in the public interest, there is no conceivable argument that the public interest is served by mandating use of trade-secret technology for which a single company has an inherent monopoly—particularly when equivalent or better technology is available from competing sources. Further, the public benefits of open standards, which were well documented in iBiquity's Petition for Rulemaking, are negated by adoption of secret ones. (Hardis comments, *Id*., at II.D.)

3. Adoption of essential trade secrets in this proceeding, absent rational explanation, is also barred by administrative law doctrine

36. An agency must either follow its own precedents or explain why it departs from them. In *Atchison, T. & S. F. R. Co. v. Wichita Board of Trade* (412 U.S. 800, 808 (1973)), the Court found that an agency has a "duty to explain its departure from prior norms." *Greater Boston Television Corp. v. FCC* (444 F. 2d 841, 852 (D.C. Cir.), *cert. denied*, 403 U.S. 923 (1971)) established that, "an agency changing its course must supply a reasoned analysis indicating that prior policies and standards are being deliberately changed, not casually ignored."

37. Here, we face changes of course on three levels. The clearest precedent to the instant proceeding on digital broadcast radio is the one on digital broadcast television. Under similar circumstances, the Advanced Television Systems Committee (ATSC) established a

bright-line test for documenting the advanced television system standard: "Complete functional system details (permitting those skilled in the art to construct a working system) were to be made publicly available." The Commission considered and incorporated this principle into its rules for broadcast television.[25] No lesser standard should apply to broadcast radio.

38. On a second level, complete and open documentation has been envisioned as an outcome of this proceeding from the start. It was hypothesized in iBiquity's petition, put up for comment in the *NPRM* (at 50–53), agreed to in the *R&O* (at 44), and reiterated in the *FNPRM* (at 56). Therefore, acquiescence to iBiquity's secret codec in the *SR&O* requires explanation.

39. Third, it would be unprecedented, anywhere in Federal government much less within the Commission's history, for regulation to be adopted that either explicitly or implicitly necessitates the use of privately held, trade-secret knowledge. Quite the contrary, the Commission cites fostering competition as among its six most important strategic goals. (http://www.fcc.gov/competition/) And at the most recent Consumer Electronics Show, I appreciated Chairman Martin's remarks in which he cited the open standards about the network behind the telephone jack as the catalyst that launched the revolution in telephony. In broadcast radio, the end of the antenna wire is the equivalent to the telephone jack, and open standards are just as important for letting this medium reach its full potential too.

4. The interposition of essential trade secrets between the public and the public airwaves is common law trespass

40. Not only does the Commission lack authority to grant exclusive rights to the owners of essential trade-secret technology, such owners also lack authority to unilaterally impose their trade-secret technology upon the public. Such would amount to common law trespass, akin to installing a locked gate on the only road to public land.

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[25] ATSC Standard: Digital Television Standard (A/53), at 4.4, as incorporated by reference in 47 C.F.R. § 73.682(d) and § 73.8000.

41. "The ultimate goal of this proceeding is to establish a robust and competitive all-digital terrestrial radio system." (*SR&O* at 22.) That is, eventually, the Commission intends to make obsolete the analog broadcast radio service that has served the U.S. public well since the 1920s. This proceeding is not about a cute little digital add-on to traditional radio, something that consumers may accept or reject at their option. Instead, this proceeding is about the permanent redefinition of the broadcast radio service in the United States, as soon will be complete for broadcast television.

42. A long-articulated goal of this proceeding is to establish a "single standard" for digital radio broadcasting.[26] As with the conversion to digital broadcasting itself, deviation from this standard is not an option. Unless the characteristics of receivers match the characteristics of transmitters in all essential respects, the transmission cannot be successfully heard.[27] And there are well-established policy considerations for ensuring a uniform, national radio broadcasting service, where all receivers work seamlessly with all broadcasting stations.[28] Even before the day arrives when analog receivers are rendered obsolete, the development of supplemental digital channels means that a substantial amount of broadcast programming cannot be received unless a receiver is utilized that comports to the established standard.

43. The American public owns the airwaves over which this broadcast radio service is provided. And among the public's rights of ownership are the rights to use and to enjoy their property.

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[26] "We conclude that the adoption of a single IBOC transmission standard will facilitate the development and commercialization of digital services for terrestrial broadcasters," First Report and Order, *Id*., at 1.
[27] Hardis comments, *Id*., at I.A (pp. 4–6), quoting USADR Petition for Rulemaking.
[28] Hardis comments, *Id*., at I.A and I.B.

44. The intellectual property of a trade secret is just that—property. And interposing one's property of any sort to blockade others' lawful access to their own property is trespass. With the exception of patent rights, which were created by the Congress for an important public purpose, and for which the Commission's patent policy requires special care and consideration, no private party has any right to impose their own conditions on the public's access to the airwaves—either as a licensed broadcaster or as a listener.[29]

45. It is untenable for the "single standard" to be based on essential secrets known only to a private party, and especially one who uses their exclusive knowledge of the essential secrets to extract tolls (rents) for accessing the airwaves. Furthermore, when such situations arise, it is the duty of the Commission, as guardian of the public interest, convenience, and necessity, to put a halt to them.[30] There is essentially little difference between blockading access to the airwaves and erecting a locked gate—or a tollbooth—on the sole road to public land.[31]

5. The "iBiquity system" contains essential trade secrets, contrary to the *Report and Order*, their *Petition*, and their duty of candor

46. The "iBiquity system" as currently available in the marketplace, if not the prototype system evaluated in 2001–2002, contains essential trade secrets, knowledge of which are necessary for designing and manufacturing compatible products. The scope of these design

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[29] "It is the purpose of this Act, among other things, to maintain the control of the United States over all the channels of radio transmission; and to provide for the use of such channels, but not the ownership thereof, by persons for limited periods of time, under licenses granted by Federal authority, and no such license shall be construed to create any right, beyond the terms, conditions, and periods of the license." (47 U.S.C. 301)

[30] "The State, no less than a private owner of property, has power to preserve the property under its control for the use to which it is lawfully dedicated." *Adderley v. Florida*, 385 U.S. 39, 47 (1966).

[31] In the physical world, such cases usually involve trespass to an easement for a road over private land. In the ethereal world of the airwaves, there is no analogy to the private land or the easement—the airwaves would be immediately at hand if not for the lack of private knowledge on how to productively utilize them. The trespass here is for injury to property rights.

secrets includes "hooks"[32] for surround sound,[33] conditional access,[34] and perhaps additional aspects of the system that have yet to receive much attention. However, the essential trade secret of most immediate concern, and the one that has come to epitomize the issue, is the secret code of the HD codec (a.k.a. HDC).

47. The iBiquity system transmits digital data, and there is public documentation that allows one to interpret the modulation of the radio wave as zero-bits and one-bits. However, no information has been provided that relates the digital data to intelligible audio. It is inescapable that the iBiquity system transmits audio in a secret code known only to iBiquity and/or its development partners, and that the code is sufficiently complex that others skilled in the art of digital communications cannot be expected to break it on their own. (Hardis comments, *Id*., at III.C.)

48. The HD codec and its inherent secrecy are directly contrary to the *R&O*. The scope of the *R&O* included codecs. (*R&O* at 18.) The authorization of the *R&O* was specific to "IBOC facilities described in Appendices B and C herein." (*R&O* at 41.) ("In the *DAB R&O*, we permitted radio stations to implement IBOC operations without prior authority, provided that the IBOC configurations were substantially the same as those tested by the NRSC." (*SR&O* at 99.)) The HD codec was developed *ab initio* after the *R&O* was released, and it was not adopted by iBiquity until August 2003. No petition has ever been made to the Commission to permit the use of HDC or any other codec noted as secret, and no specific authorization has ever been made by the Commission to allow the use of HDC or any other codec noted as secret. (Sec. III.B, *Supra*.)

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[32] A "hook" is a design element of computer software that is included to permit an additional capability at a later time. Hooks are important to the present discussion because they are associated with undocumented data fields in the digital data broadcast over the air.

[33] *See*, e.g., "iBiquity involvement in surround sound" at p. 9 of National Radio Systems Committee, *Broadcasting Surround Sound Audio over IBOC Digital Radio—Issues and Resources for FM Broadcasters*; available at http://nrscstandards.org/DRB/SSATG%20report%20final.pdf.

[34] *See*, e.g., "Next-Gen Features on the Horizon," Radio World Online, June 6, 2007, at http://www.rwonline.com/pages/s.0049/t.6493.html.

49. Codec secrecy is directly contrary to what iBiquity (then its predecessor company, USADR) put before the Commission in its Petition for Rulemaking. They put forward the proposition that, "A DAB transmission standard should include necessary technical elements to ensure compatibility," and they called out the codec as one of the three most important such elements. And discounting an interpretation that they expected the Commission to divine a standard on its own, it was an offer of this information about their system in exchange for adoption of the rules requested. (Hardis comments, *Id.*, at I.A and III.C.) The Commission agreed, in the *R&O* and *FNPRM*.

50. In the intervening time, which now amounts to almost nine years, not once has iBiquity made any indication on the record that they would not (or could not) live up to this commitment. Instead, they tried to quietly sneak through a documentary standard, NRSC-5, that lacked this essential information. If not for the few independent voices that raised the issue in comments, we would not now have on record the reply comments that make it unmistakably clear that iBiquity offered the NRSC nothing but Hobson's choice. (Hardis reply comments, *Id.*, at V.). Both NAB and CEA ultimately acknowledged that iBiquity's stonewalling was a "thorny problem."[35] NAB called the omission of the codec an "undesirable choice." (*Id.*, at p. 11.) And top leadership of the NRSC reported that, "the NRSC faced squarely the two possible alternatives resulting from this situation—either develop a standard without the inclusion of a codec or develop *no* standard at all."[36] In fact, they went on to suggest that the Commission might "simply reject this Standard completely." (*Id.* at p. 5.) iBiquity assured that, "the Commission can now move forward with adoption of NRSC-5 with full confidence in the integrity of the

[35] Reply Comments of The National Association of Broadcasters, August 17, 2005, at p. 8.
[36] Reply Comments of Charles T. Morgan, Milford K. Smith, and Andy Laird, August 17, 2005, at p. 2.

NRSC process."[37] In truth, they were using the NRSC and its good reputation to manipulate the Commission's rulemaking.

51. This is not a "standards" issue or an NRSC issue. This is an issue of deceit. Fundamental to the Commission's rulemaking process is having all necessary information at hand in order to reach a sensible conclusion. Patent policy is an element of this, as "information relating to licensing and royalty agreements is essential." (Patent policy, *Id*.) So too is the duty of candor of applicants before the Commission, who must be forthcoming with all salient facts, whether or not they are particularly elicited.[38] iBiquity has utterly failed in this regard with respect to their intellectual property, even two years after it was first called to their attention in comments. (Hardis comments, *Id*., at III.E.) Rather than finding that they have "abided" by patent policy (*SR&O* at 101), you ought to be issuing sanctions for their quiet bait-and-switch.[39]

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[37] Reply Comments of iBiquity Digital Corporation, August 17, 2005, at p. 4.

[38] "The FCC … must rely heavily on the completeness and accuracy of the submissions made to it, and its applicants in turn have an affirmative duty to inform the Commission of the facts it needs in order to fulfill its statutory mandate. This duty of candor is basic, and well known." (*RKO General, Inc. v. FCC*, 670 F.2d 215, 232 (D.C. Cir. 1981).) The duty of candor requires an applicant before the FCC to be "fully forthcoming as to all facts and information relevant" to its application. (*Swan Creek Communications v. FCC*, 39 F.3d 1217, 1222 (D.C. Cir. 1994).) Relevant information is defined as information that may be of "decisional significance." (*RKO General*, 670 F.2d, at 229.) The duty of candor can be breached both by affirmative misrepresentations and by a "fail[ure] to come forward with a candid statement of relevant facts," (*Id*.) "whether or not such information is particularly elicited" by the Commission or its staff. (*Swan Creek*, 39 F.3d, at 1222.)

[39] § 1.17 of the Commission's rules is crafted to exclude general rulemaking proceedings, in particular, comments filed therein. (Amendment of Section 1.17 of the Commission's Rules, 18 FCC Rcd 4016 (2003) (R&O).) However, this rulemaking proceeding was preceded by iBiquity's petition and application to make their system the U.S. digital radio standard. Whatever concerns the Commission might have had about stifling debate during rulemaking surely do not affect the need for truthfulness in the factual foundation upon which a rulemaking is based, and the need to keep the Commission apprised of material changes to information on record. "…we expect parties to be truthful in rulemakings and declaratory ruling proceedings…" (*Id*. at 13.)

6. The use of a trade-secret codec is technically unnecessary

52. It would be a lot more interesting if there was inherent tension between the legal framework described *supra* and novel needs in this proceeding. But alas, there is none. AAC is a fully competent codec to use for IBOC radio, as has been proven by NRSC tests, public comment, and Commission action. (Hardis comment, *Id*., at III.E (p. 34).) There is not a single reason to suggest substitution of HDC for AAC—other than its utility for picking the pockets of the public.

53. HDC and AAC serve the same purpose—reducing the number of bits needed to represent digitized sound—and they do it about equally well. The NRSC tested AAC and HDC, and AAC scored slightly higher, though not by enough to prove superiority. (Hardis comments, *Id*., at III.E (pp. 34–35).) In fact, there is substantial reason to believe that HDC and AAC might be the same basic technology, but for labeling and a cloak of secrecy.[40] (Hardis comments, *Id*.) Their principal difference is not their technical quality. The difference is that the specification of HDC is held as a trade secret, while AAC is an open, international standard. Were it not for this difference, I would have no reason to prefer either one over the other.

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[40] The comments elaborate on the point that AAC would have to be customized for IBOC radio, but these derivative actions would in no way change the essential nature of the intellectual property. One citation made in comment is, "HDC is merely a multi-streaming version of HEAAC (MPEG AAC+ with SBR)." In the iBiquity design, the term "multistreaming" does not refer to multiple channels of programming—that term is "multicasting." Instead, "multistreaming" refers to division of the spectral band into regions of greater and lesser noise (interference) immunity, and transmitting the more significant data bits in the more robust spectrum. The "Audio Transport" document of NRSC-5 describes multistreaming. It is important to note that multistreaming was *not* a design element of the USADR system tested by the NRSC and approved for use in the *First Report and Order*, i.e., a conforming element as described in Sec. III, *supra*. Multistreaming was a patented element of the Lucent Digital Radio system. (See, e.g., Comments of Lucent Digital Radio, January 24, 2000.) In the AM system, the streams are called "core" and "enhanced." Multistreaming is not used in the hybrid FM system, but it may be used in future FM modes. If this published claim were correct, a codec specification for IBOC radio would have to document the encoding method (e.g., HE-AAC and its operating mode and parameters), the segregation and packaging of the bits for "core" and "enhanced" transmission, and any synchronization data that may be necessary to recombine them at the receiver.

54. Partnerships are important for technology development, and iBiquity teamed with Coding Technologies to develop the HD codec. (Hardis comments, *Id.*, at I.G.) Suggestions arose in comment that somehow the relationship between these two firms might have constrained iBiquity to a trade-secret codec. This is utter nonsense. First, Coding Technologies makes a business of providing "optimized implementations" of AAC to meet the needs of its clients. (Hardis comments, *Id.*, at I.G.) A relationship with Coding Technologies did not preclude the use of AAC. Second, Coding Technologies is fully capable of providing open, standards-quality documentation on their AAC implementations, as they have for Digital Radio Mondiale,[41] Eureka 147 "DAB+,"[42] and various other broadcasting and mobile telephony systems in use around the world.

V. CONCLUSION AND ACTION REQUESTED

55. Each of the three grounds is sufficient on its own to grant the Petition. Together, they provide a solid foundation for rectifying a fundamental wrong—granting authorization before answering iBiquity's gambit on trade secrecy. Although iBiquity began deploying HDC openly and notoriously in contravention to the *R&O* in 2003, it was not revealed until two years later that—as far as iBiquity was concerned—the terms of their Petition were no longer binding.

56. Some may think that permanent authorization is largely perfunctory, given the Commission's decision in the *R&O* to pursue the IBOC vision. However, I have proven this to be incorrect. Neither permanent nor continued interim authorization is warranted until the secrecy issue is resolved. iBiquity and its partners need be sent the clear message that we expect better of them—promises made to the FCC and to the public are promises made to be kept. We have other options if iBiquity continues to ignore their commitment to openness.

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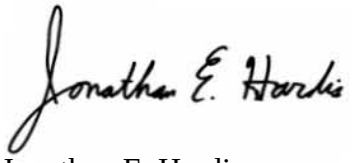
[41] ETSI standard ES 201 980, V2.2.1 (October 2005).
[42] ETSI standard TS 102 563, V1.1.1 (February 2007).

57. Now as before the Commission must articulate a clear prerequisite—IBOC system specifications in such full, clear, concise, and exact terms as to enable any persons skilled in the art to which they pertain to make devices that works compatibly and seamlessly within a single, national U.S. digital radio broadcasting system. And the Commission must establish enforceable assurance that iBiquity is committed to provide publicly available documentation covering all aspects of the IBOC radio broadcasting system (except for those used exclusively for subscription services).

Respectfully submitted,



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